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SAMPLE IMPACT CALCULATIONS--BASE REALIGNMENT PROPOSAL ATC.(U)
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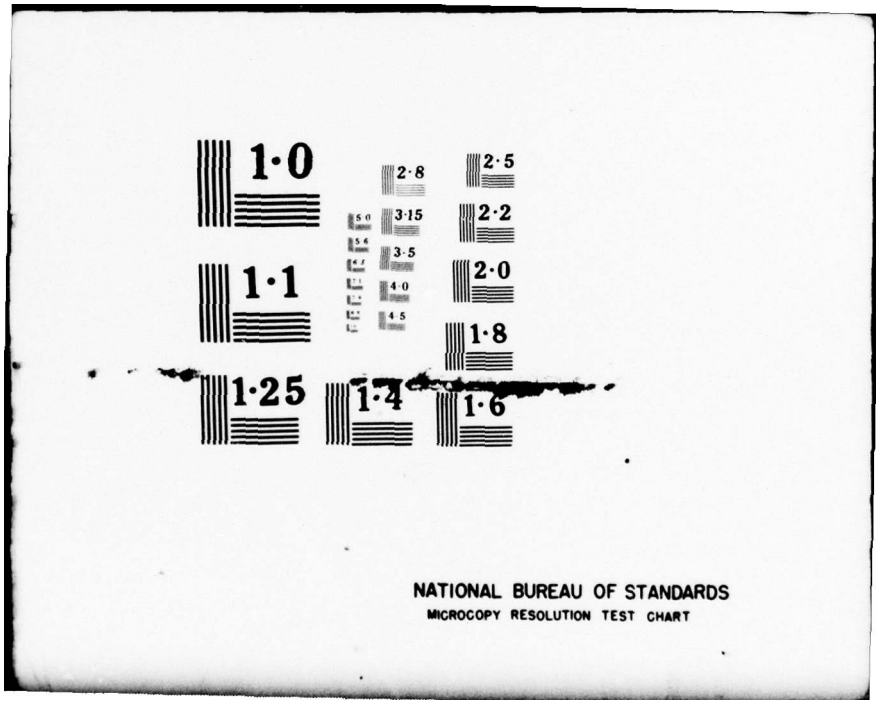
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SAMPLE IMPACT CALCULATIONS

BASE REALIGNMENT PROPOSAL

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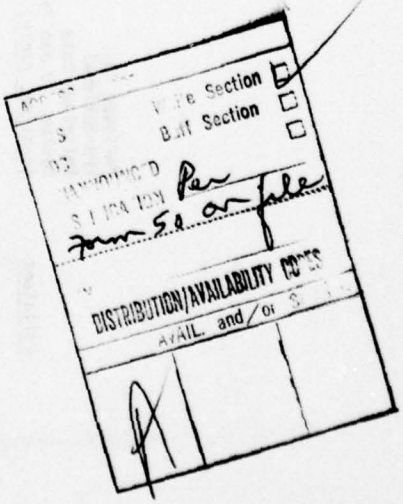
SAMPLE IMPACT CALCULATIONS

BACKGROUND STUDY #7

AIR EMISSIONS (AFERN 3.3.2.2)

The Environmental Health Laboratory (EHL), McClellan AFB, CA, calculated air emission decreases based upon closure of the proposed and alternate bases. These impacts are shown in tabular form in Chapters III and IV of the Environmental Impact Statement. Closure of two UPT bases will result in a redistribution of training loads throughout the Command and an increase in operating levels at remaining UPT bases. Impacts at gaining locations other than Williams AFB were not quantified since anticipated operating levels will remain below previous peaks. Since Maricopa County, Arizona, has been designated as an Air Quality Maintenance Area (AQMA) by the EPA, the impact of increased flying operations at Williams AFB should be quantified. Accordingly, baseline emissions derived from validation of the computerized Air Quality Assessment Model (AQAM) at Williams AFB during 1976 were compared to the EPA's National Emissions Data System (10 Jan 75 run) analysis for Maricopa County. This information was presented in Chapter I of the EIS.

Aircraft emissions, as well as base support functions, increase in direct proportion to flying hours. Therefore, future emissions have been calculated for Williams through multiplication of baseline emissions by an increased flying hour factor. An increased flying hour factor of 1.15 was derived by dividing FY 76 flying hours at Williams (78,705) into flying hours projected for FY 2/77 (90,873). The results of these calculations are included in Computation Sheet 1.



COMPUTATION SHEET 1

AIR EMISSIONS, WILLIAMS AFB (AFERN 3.3.2.2)
AIR QUALITY ASSESSMENT MODEL (AQAM)

Pollutant	Maricopa Co. EPA-National Emissions Data System, 10 Jan 75 (tons/yr, avoir)	Military Aircraft Metric tons/yr	Military Aircraft tons/yr (avoir)	Military Aircraft % Area	Military Aircraft % County	Base Support Sources Metric tons/yr	Base Support Sources tons/yr (avoir)	Base Support Sources % Area	Base Support Sources % County
Part									
Current	16,785	11.0	12.1	.23	.07	27.3	30.0	.56	.18
Projected[2]	16,791.3	-	13.9	.26	.08	-	34.5	.64	.21
SO_x									
Current	5,389	52.1	57.3	8.52	1.06	103.0	113.3	16.86	2.10
Projected[2]	5,414.6	-	65.9	9.45	1.21	-	130.3	18.67	2.41
NO_x									
Current	68,129	120.0	132.0	2.10	.19	80.3	88.3	1.40	.13
Projected[2]	68,162.0	-	151.8	2.40	.22	-	101.5	1.60	.15
HC									
Current	112,742	1,416.2	1,557.8	8.90	1.38	216.0	237.6	1.36	.21
Projected[2]	113,011.3	-	1,791.5	10.08	1.58	-	273.2	1.54	.24
CO									
Current	480,815	4,255.3	4,680.8	6.97	.97	725.0	797.5	1.19	.17
Projected[2]	481,636.7	-	5,382.9	7.92	1.12	-	917.1	1.35	.19
Total									
Current	683,860	5,854.6	6,440.0	6.64	.94	1,151.6	1,266.7	1.31	.19
Projected[2]	685,016	-	7,406.0	7.55	1.08	-	1,456.7	1.48	.21

COMPUTATION SHEET 1 (continued)

Total Base Contributions tons/yr (avoir)	% Area	% County	Metric tons/yr	Off Base Sources[3] tons/yr (avoir)	% Area	% County	Total Area[4] tons/yr (avoir)	% County
42.1	.79	.25	4,821.9	5,304.1	99.21	31.60	5,346.2	31.85
48.4	.90	.29	-	5,304.1	99.10	31.59	5,352.5	31.88
170.6	25.38	3.16	456.0	501.6	74.62	9.31	672.2	12.47
196.2	28.12	3.62	-	501.6	71.88	9.26	697.8	12.88
220.3	3.50	.32	5,529.7	6,082.7	96.50	8.93	6,303.0	9.25
253.3	4.00	.37	-	6,082.7	96.00	8.92	6,336.0	9.29
1,795.4	10.26	1.59	14,276.0	15,703.6	89.74	13.93	17,499.0	15.52
2,064.7	11.62	1.82	-	15,703.6	88.38	13.90	17,768.3	15.72
5,478.3	8.16	1.14	56,085.0	61,693.5	91.84	12.83	67,171.8	13.97
6,300.0	9.27	1.31	-	61,693.5	90.73	12.81	67,993.5	14.12
7,706.7	7.95	1.13	81,168.6	89,285.5	92.05	13.05	96,992.2	14.18
8,862.7	9.03	1.29	-	89,285.5	90.97	13.03	98,148.2	14.32

NOTES:

1. 1 short ton (avoirdupois) = 1.1 metric ton (AQAM printout was in metric tons)
2. Projected emissions = Current emissions X $\frac{\text{90,873 Projected Flying Hours}}{\text{78,705 Current Flying Hours}}$
3. Off base sources are within 20 km of base, but exclude base.
4. Total area emissions are for an area within a 20 km radius of base and include base.
5. Projected emissions for area and Maricopa County are assumed to increase only by amount of additional pollutants generated by the Air Force.

POPULATION (AFERN 4.1.1)

Computation sheet 3 summarizes the population analyses for the candidate and alternative bases. Two characterizations are presented to portray the "expected minimum" population loss and the "maximum" population loss. The "expected minimum" loss is calculated on the premise that the proposed or alternative action would result in all military employees and their dependents plus 62% of the DAF civilian employees and their dependents would leave the region of influence. The "maximum" loss is calculated on the premise that all base employees and their dependents plus all secondary job losers and their dependents would leave the region of influence. The baseline for all base employees and dependents is those assigned as of 31 March 1976. The number of military dependents was determined by a survey of military personnel records. The results of a socio-economic planning study conducted at Craig and Webb AFBs were used to determine a ratio of 1.87 dependents per DAF civilian employee. The ratio of dependents to other base civilians and secondary job losers was determined for each region from census data.

Computations for Columbus AFB are shown on computation sheet 2 as an example. Numbers in parenthesis refer to column numbers on computation sheet 3. The Regional Net Migration Rates for 1960-1970 and estimated migration rates for 1970-74 are also shown on computation sheet 3. Parenthesis () indicates out migration. Migration rates may tend to indicate relative tendency for unemployed persons to relocate in search of employment.

CALCULATION METHODOLOGY FOR POPULATION (AFERN 4.1.1)

		Column
A.	**EXISTING**	
1.	Total Regional Population	(1)
2.	Military Assigned (March 1976)	(2)
3.	Military Dependents	(3)
4.	DAF Civilians	(4)
5.	DAF Civilian Dependents	(5)
6.	Other Base Civilians	(6)
7.	Other Base Civilian Dependents	(7)
8.	Secondary Employees	(8)
9.	Secondary Employee Dependents	(9)
B.	**EXPECTED MINIMUM POPULATION LOSS CALCULATION**	
1.	Expected minimum loss = (2)+(3)+ .62 [(4)+(5)] =	(10)
2.	Expected minimum loss as % of Region (10)÷(1) =	(11)
C.	**MAXIMUM POPULATION LOSS CALCULATION**	
1.	Maximum loss = (2)+(3)+(4)+(5)+(6)+(7)+(8)+(9) =	(12)
2.	Maximum loss as % of region (12)÷(1) =	(13)

COMPUTATION SHEET 2

EXAMPLE CALCULATION FOR COLUMBUS POPULATION (AFERN 4.1.1)

A.	EXISTING	Column	
	1. Total Region Population	54,200	(1)
	2. Military Assigned (March 1976)	2,542	(2)
	3. Military Dependents	3,148	(3)
	4. DAF Civilians	564	(4)
	5. DAF Civilian Dependents	1,055	(5)
	6. Other Base Civilians	290	(6)
	7. Other Base Civilian Dependents	647	(7)
	8. Secondary Employees	1,244	(8)
	9. Secondary Employee Dependents	2,774	(9)
B.	EXPECTED MINIMUM POPULATION LOSS		
	1. Expected minimum population loss 2,542 + 3,148 + .62 (564 + 1055) = 2,542 + 3,148 + 1004 =	6,694	(10)
	2. Expected minimum population loss as % region = $\frac{6,694}{54,200}$ =	12.3%	(11)
C.	MAXIMUM POPULATION LOSS		
	1. Maximum population loss = 2,542+3,148+564+1055+290+647+1244+2774 =	12,264	(12)
	2. Maximum population loss as % region = $\frac{12,264}{54,200}$ =	22.6%	(13)

COMPUTATION SHEET 3

POPULATION (AFERN 4.1.1)

	(1) Total Region Pop	(2) Mil Pers Assg	(3) Mil Dep	(4) DAF Civ	(5) DAF Civ Dep	(6) Other Base Civ	(7) Other Base Civ Dep	(8) Secondary Empl	(9) Secondary Empl Dep	(10) Expected Minimum Pop Loss	(11) Expected Minimum Loss % Region	(12) Maximum Pop Loss	(13) Maximum Loss % Region	(14) 1960-70 Migration Rate (Census)	(15) Estimated 1970-74 Migration Rate
Craig	56,389	1,863	2,524	547	1,023	393	900	1,308	2,995	5,360	9.5%	11,553	20.5%	(10.48)	(2.8)
Webb	40,140	2,204	2,855	663	1,240	246	480	1,065	2,077	6,239	15.5%	10,830	27.0%	(20.6)	(2.1)
Columbus	54,200	2,542	3,148	564	1,055	290	647	1,244	2,774	6,694	12.3%	12,264	22.6%	(9.6)	2.0
Laughlin	31,700	2,195	3,150	608	1,137	249	568	920	2,098	6,427	20.3%	10,925	34.5%	(12.7)	5.0
Reese	196,062	2,070	2,838	643	1,202	240	492	1,420	2,911	6,053	3.1%	11,816	6.0%	(5.9)	2.7
Vance	60,700	1,068	1,463	141	264	1,063	1,775	936	1,563	2,781	4.6%	8,273	13.6%	(2.7)	.05

ETHNIC/RACIAL DISTRIBUTION (AFERN 4.1.2)

The baseline data for the Ethnic/Racial distribution analysis was obtained from a November 1975 survey of base personnel records and from the 1970 census. The ethnic/racial distributions from the survey were applied against the March 1976 military and DAF civilian assigned strengths. The 1970 census distributions were applied against the most recent county populations to determine the distribution for the non-DAF base employees and the secondary job losers. Dependent ratios for military and DAF civilian employees were obtained from base survey data and county household sizes were obtained from census data for the non-DAF and secondary employees. For purposes of this analysis dependents are assumed to have the same racial distribution as their sponsors in all categories. The racial distribution for the secondary employees was determined from census data for the economic sectors within the county.

Resultant ethnic/racial distributions are presented in two characterizations. The "expected minimum" distribution would result from all military and 62% of the DAF civilians and their dependents leaving the region. The "maximum" distribution would result if all military, all DAF civilian, all other base employees, and all secondary employees and their dependents were to leave the region.

Calculations for Craig AFB are shown on computation sheet 4. Summary data for all bases is shown on computation sheet 5.

CALCULATION METHODOLOGY FOR ETHNIC/RACIAL DISTRIBUTION (AFERN 4.1.2)

EXISTING:	WHITE	COLUMN NON WHITE	SPANISH AMERICAN
1. REGIONAL DISTRIBUTION	(1)	(2)	(3)
2. MILITARY DISTRIBUTION	(4)	(5)	(6)
3. DAF CIVILIAN DISTRIBUTION	(7)	(8)	(9)
4. OTHER BASE EMPLOYEES AND SECONDARY DISTRIBUTION	(10)	(11)	(12)
5. TOTAL REGIONAL POPULATION	(13)		

EXPECTED MINIMUM IMPACT:

1. REMAINING WHITE POPULATION	(1)-(4)-.62(7) = (14)
2. REMAINING NON-WHITE POPULATION	(2)-(5)-.62(8) = (15)
3. REMAINING SPANISH AMERICAN POPULATION	(3)-(6)-.62(9) = (16)

MAXIMUM IMPACT:

1. REMAINING WHITE POPULATION	(14)-.38(7)-(10) = (17)
2. REMAINING NON-WHITE POPULATION	(15)-.38(8)-(11) = (18)
3. REMAINING SPANISH-AMERICAN POPULATION	(16)-.38(9)-(12) = (19)

COMPUTATION SHEET 4

EXAMPLE CALCULATION FOR CRAIG
ETHNIC/DISTRIBUTION (AFERN 4.1.2)

		COLUMN		
		WHITE	NON WHITE	SPANISH AMERICAN
EXISTING:				
1.	REGIONAL DISTRIBUTION	26,841 (47.6%)	29,548 (52.4%)	
2.	MILITARY DISTRIBUTION	3799	588	
3.	DAF CIVILIAN DISTRIBUTION	1325	245	
4.	OTHER BASE EMPLOYEES AND SECONDARY DISTRIBUTION	3375	2221	

EXPECTED MINIMUM IMPACT:

1.	REMAINING WHITE POPULATION	26,841-3799-822=	22,220 (43.5%)
2.	REMAINING NON-WHITE POPULATION	29,548-588-152=	28,808 (56.5%)
3.	N/A		

MAXIMUM IMPACT:

1.	REMAINING WHITE POPULATION	22,220-504-3375=	18,341 (40.9%)
2.	REMAINING NON-WHITE POPULATION	28,808-93-2221=	26,494 (59.9%)

COMPUTATION SHEET 5

ETHNIC/RACIAL DISTRIBUTION (AFERN 4.1.2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		CURRENT REGIONAL DISTRIBUTION (%)			MILITARY DISTRIBUTION (%)			DAF CIVILIAN DISTRIBUTION (%)	
	White	Non White	SP Amer	White	Non White	SP Amer	White	Non White	SP Amer
CRAIG	26,841 (47.6)	29,548 (52.4)	-0-	3799 (86.6)	588 (13.4)	-0-	1325 (84.4)	245 (15.6)	-0-
WEBB	32,273 (80.4)	1,766 (4.4)	6101 (15.2)	4366 (86.3)	546 (10.8)	147 (2.9)	1652 (86.8)	38 (2.0)	213 (11.2)
COLUMBUS	36,531 (67.4)	17,669 (32.6)	-0-	4182 (73.5)	1508 (26.5)	-0-	1447 (89.4)	172 (10.6)	-0-
LAUGHLIN	12,870 (40.6)	888 (2.8)	17,942 (56.6)	4554 (85.2)	465 (8.7)	326 (6.1)	911 (52.2)	49 (2.8)	785 (4.5)
REESE	142,537 (72.7)	19,606 (10.0)	33,919 (17.3)	4221 (86.0)	515 (10.5)	172 (3.5)	1542 (83.6)	126 (6.8)	177 (9.6)
VANCE	57,968 (95.5)	2,246 (3.7)	486* (0.8)	2374 (93.8)	157 (6.2)	-0-	376 (92.8)	11 (2.7)	18* (4.5)

* American Indian

COMPUTATION SHEET 5 (Continued)

	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	OTHER BASE EMPLOYEES AND SECONDARY DISTRIBUTION* (%)				EXPECTED MINIMUM IMPACT REMAINING POPULATION (%)			MAXIMUM IMPACT REMAINING POPULATION (%)		
	White	Non White	Sp. Amer	County Pop	White	Non White	Sp. Amer	White	Non White	Sp. Amer
CRAIG	3,375 (60.3)	2,221 (39.7)	-0-	56,389	22,220 (43.5)	28,808 (56.5)	-0-	18,341 (40.9)	26,494 (59.1)	-0-
WEBB	3,239 (83.7)	127 (3.3)	502 (13.0)	40,140	26,883 (79.3)	1,196 (3.5)	5,822 (17.2)	23,016 (78.5)	1,055 (3.6)	5,239 (17.9)
COLUMBUS	3,681 (74.3)	1,274 (25.7)	-0-	54,200	31,452 (66.2)	16,054 (33.8)	-0-	27,221 (64.9)	14,715 (35.1)	-0-
LAUGHLIN	1,559 (40.7)	82 (2.1)	2,194 (57.2)	31,700	7,751 (30.7)	393 (1.6)	17,129 (67.7)	5,846 (28.1)	292 (1.4)	14,637 (70.5)
REESE	4,094 (80.9)	302 (6.0)	667 (13.1)	196,062	137,360 (72.3)	19,013 (10.0)	33,637 (17.7)	132.680 (72.0)	18,663 (10.1)	32,903 (17.9)
VANCE	5,076 (95.1)	206 (3.9)	55 (1.0)	60,700	55,361 (95.6)	2,082 (3.6)	475 (0.8)	50,142 (95.6)	1,872 (3.6)	413 (0.8)

EMPLOYMENT (UNEMPLOYMENT) (AFERN 4.2.2)

Data used in computation of unemployment rates are tabulated in Computation Sheet 6. Columns 1, 2, and 3 list numbers unemployed, labor forces, and unemployment rates. (All are FY 76 averages.) Entries in these columns were obtained from the Bureau of Labor Statistics. Columns 4 through 7 provide assigned military, Federal civilian, and miscellaneous civilian (nonappropriated fund, Base Exchange, Commissary, and contractor employees) personnel strengths as of 31 Mar 76. These data were obtained from Headquarters Air Training Command, DCS/Personnel. Column 8 lists regional employment multipliers (the ratio of indirect job losses to direct job losses), derived from the Input/Output Analysis. Secondary job losses resulting from base closure, computed by multiplying the total assigned military and civilian strength from Column 7 by the employment multiplier in Column 8, are entered in Column 9. Civilians not placed in other jobs (Column 10) are estimated at 38% of the Federal civilian strengths shown in Column 5 (based upon past Department of Defense (DOD) base closure experience) plus all miscellaneous civilian employees. The total increase in unemployment (Column 11) is equal to the sum of the secondary job losses (Column 9) and the Federal and miscellaneous civilians not placed in other jobs (Column 10). The total unemployed after base closure (Column 12) are estimated as the sum of the those previously unemployed (Column 1) plus the total increase in unemployment (Column 11). The labor force after base closure (Column 13) is then projected by deducting those Federal civilians placed in other Federal jobs (62% of the Federal civilian strength listed in Column 5, based upon past DOD experience) from the FY 76 labor force (Column 2). The unemployment rate after base closure (Column 14) is then computed by dividing the total projected unemployment (Column 12) by the projected labor force (Column 13).

COMPUTATION SHEET 6

UNEMPLOYMENT (AFERN 4.2.2)

Region of Influence/ (Base)	1 Number Unempd FY 76	2 Labor Force FY 76	3 Unempmt Rate FY 76	Assigned Personnel 31 Mar 76 4 Mil	5 Fed Civ	6 Misc Civ	7 Total	8 Empmt Multiplier	9 Secondary Job Loss	10 Civ Not Placed	11 Increase In Unempmt	12 Unempd After Closure	13 Labor Force After Clos	14 Unempmt Rate After Clos
Dallas Co, AL (Craig AFB)	1,911	20,303	9.4%	1,863	547	393	2,803	.466	1,308	601	1,909	3,818	19,964	19.1%
Howard Co, TX (Webb AFB)	452	16,170	2.8%	2,204	663	246	3,113	.342	1,065	498	1,563	2,015	15,759	12.8%
Lowndes Co, MS (Columbus AFB)	1,065	21,035	5.1%	2,542	564	290	3,396	.366	1,244	504	1,748	2,813	20,685	13.6%
Val Verde Co, TX (Laughlin AFB)	1,091	9,118	12.0%	2,195	608	249	3,052	.301	920	480	1,400	2,491	8,741	28.5%
Lubbock Co, TX (Reese AFB)	3,420	90,813	3.8%	2,070	643	240	2,953	.481	1,420	484	1,904	5,324	90,414	5.9%
Garfield Co, OK (Vance AFB)	1,129	27,768	4.8%	1,068	141	1,063	2,272	.412	936	1,117	2,053	3,182	27,681	11.5%

COMPUTATION SHEET 7

ECONOMIC ACTIVITY (AFERM 4.2.2.3)

	Webb	Craig	Columbus	Laughlin	Vance	Reese
1. Current TRO (from the Input/Output Analysis (I/O))	$561.127	$508.666	$536.886	$201.583	$772.630	$1,936.086
2. Reduction in TRO						
a. Direct payroll loss (est '76 payroll)	38.223	34.506	39.250	36.810	25.924	35.355
b. Local procurement loss (FY-76 local procurements)	.880	3.303	1.703	1.175	2.111	3.579
c. Decrease in productive output (from I/O)	23.811	31.908	31.682	24.461	23.094	36.768
d. Total reduction in TRO (a+b+c)	62.914	69.718	72.648	62.447	51.129	75.703
e. Percent decline in regional output (d÷1)	11.2%	13.71%	13.53%	30.98%	6.62%	3.91%
3. Resultant TRO (1-2)	$498.274	$438.947	$464.238	$139.136	$721.500	$1,860.382
4. Regional output multiplier $\frac{c + [(.801 \text{ disp income adjustment factor})(a)+b]}{[(.801)(a)+(b)]}$	1.755	2.031	1.956	1.798	2.010	2.153
5. Total reduction in value added (from I/O)	$ 14.626	$ 18.871	$ 18.647	$ 14.511	$ 13.384	$ 21.753
6. Current regional value added (from I/O)	264.540	297.723	331.132	134.958	419.939	1,193.910
a. Percent decline in value added (5÷6)	5.53%	6.34%	5.63%	10.75%	3.21%	3.08%
7. Resultant regional value added (6-5)	$249.914	$278.852	$312.485	$120.447	$406.555	$1,172.157
8. Value added multiplier (c÷5)	1.627	1.691	1.699	1.686	1.725	1.690
9. Secondary unemployed (from I/01065	1065	1308	1244	920	936	1420
10. Employment multiplier $\left(\frac{\text{direct job losses + indirect job losses}}{\text{direct job losses}}\right)$	1.34[illegible]	1.466	1.366	1.301	1.412	1.48[illegible]

Note: All dollar amounts expressed in millions

Total Regional Output - TRO

SALES TAXES (AFERN 4.2.3.1)

To estimate the impact on sales tax revenues, it was necessary to estimate the decrease in retail sales in each region of influence. The appropriate tax rate was then applied to that estimated reduction in retail sales to quantify tax revenue losses. This procedure over estimates the impact in that all retail purchases, food goods for example, are not taxable in Texas and many other states. Since data was not available to identify a specific percentage of goods not taxable, this was not considered in the analysis thus producing an estimated impact that is somewhat magnified. From this standpoint, the impact shown is certainly "worst case."

The basic entering data in the analysis was base payroll. From these payrolls, it was necessary to estimate disposable income that would be utilized for retail purchases. Economic consultants recommended using 40% of payroll as a good estimate.

The fact that a large percentage of military retail sales are made in the Base Exchange and Commissary had to be considered. Since sales in these facilities are not subject to sales taxes, that amount associated with active military assigned to each base was subtracted from the military associated disposal income. The remainder is assumed to be applied to retail sales in the community thus subject to sales tax.

Having considered the impact of direct payroll loss, it was necessary to predict indirect payroll loss. Indirect losses are incurred from job losses in the community sector caused by a reduced demand for goods and services as a result of the direct payroll losses above. A computer Input/Output Model was used to predict the relationship between direct and indirect losses. A factor was developed for each base's region of influence predicting this relationship. Columbus AFB, for example, was determined to have a value added multiplier of 1.699. When applied to the base payroll, it would mean that for every $1 of base payroll an additional $0.699 payroll is generated in the community. Indirect payroll loss is then estimated by multiplying the total base payroll by these factors (0.699 in the case of Columbus). Value added factors for all bases are shown on computation sheet 8.

Using the data provided on Computation Sheet 8, sample calculations for Columbus AFB are shown below:

MILITARY ASSOCIATED TAXABLE RETAIL SALES LOSS -

Mil Payroll	(4)	$29,630,114
		x .4
Total Mil Retail Sales		$11,852,045
BX & Comm. Sales	(7)	$ 9,635,094

Since a large number of retired personnel reside in the area and utilize the BX and commissary, that proportional amount based on population split is subtracted from these sales to predict the active military portion.

(7) (1) (1) (3)
$9,635,094 [2542/(2542 + 905)] = $7,105,427

ESTIMATED MIL DISPOSABLE INCOME SUBJECT TO SALES TAX

(8)
$11,852,045 - $7,105,427 = $4,746,618

AF CIVILIAN ASSOCIATED TAXABLE RETAIL SALES LOSS

Civ Payroll	(5)	$ 9,632,751
		x .4
	(9)	$ 3,853,100

INDIRECT DISPOSABLE INCOME ATTRIBUTED RETAIL SALES LOSS

Total Base Payroll	(6)	$39,262,865
		x 0.699
		$27,444,742
		x .4
	(10)	$10,977,896

TOTAL ESTIMATED RETAIL SALES LOSS

Mil	(8)	$ 4,746,618
Civ	(9)	3,853,100
Indirect	(10)	10,977,896
		$19,577,614

ESTIMATED STATE SALES TAX LOSS

(11) (12)
$19,577,614 (0.05) = $978,881

ESTIMATED LOCAL SALES TAX LOSS

(13) (14)
$19,577,614 (0.01) = $195,776

COMPUTATION SHEET 8

RETAIL SALES TAX LOSS (AFERN 4.2.3.1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) (.4)(4)- (7)	$\frac{(1)}{(4)+(3)}$	(9) (5)(.4)	(10) [(6)(.4)][(X)]	(11)	(12) [.4][(8)+(9)+(10)]	(13)	(14) (12)(13)
	Personnel (Mar 76)			Payroll (Mar 76)											
	Mil	Civ	Retirees	Mil	Civ	Total	BX & Comm Sales (FY 76)	Est Mil Disposable Income Subject to Sales Tax		Est Civ Disposable Income Subject to Sales Tax	Est Secondary Disposable Income Loss	Sales Rate	Est State Tax Loss Amount	Sales Rate	Est Local Tax Loss Amount
Craig	1863	854	747	23,602,582	10,904,586	34,507,168	5,672,452	5,392,076		4,361,834	9,537,781	4%	771,668	2%	385,834
Webb	2204	909	1178	26,698,927	11,524,209	38,223,136	7,119,475	6,039,913		4,609,684	9,586,362	4%	809,438	1%	202,359
Columbus	2542	854	905	29,630,114	9,632,751	39,262,865	9,635,094	4,746,618		3,853,100	10,977,896	5%	978,881	1%	195,776
Laughlin	2195	857	525	26,184,820	10,626,115	36,810,935	5,844,824	5,757,242		4,250,446	10,100,920	4%	804,344	1%	201,086
Reese	2070	883	987	24,844,844	10,510,063	35,354,907	7,665,482	4,747,377		4,204,025	9,757,954	4%	748,374	1%	187,094
Vance	1068	1204	801	14,839,064	11,085,493	25,924,557	4,191,546	3,540,457		4,434,197	7,518,121	2%	309,855	1%	154,928

Value Added Factors (x)

Craig	.691
Webb	.627
Columbus	.699
Laughlin	.686
Reese	.690
Vance	.725

HOUSING (AFERN 4.2.5)

Housing vacancy rates are presented in two characterizations. The first describes the "expected minimum" vacancy rates as a result of all military and 62% of the DAF civilians leaving the region of influence. The second characterization describes the "maximum" vacancy rates which would result if all base employees and all secondary job losers were to leave the region of influence. It is assumed that all workers that could be affected by the proposed or alternative actions are heads of households and therefore occupy a separate dwelling. Ratios of owners versus renters for all base employees were developed for each base by survey. Ratios of owners versus renters for the secondary employees affected were developed from existing community occupancy data. Sample calculations for the "expected minimum" and "maximum" housing impacts for Reese AFB are shown on computation sheet 9. Summary housing effects for all bases are shown on computation sheet 10.

CALCULATION METHODOLOGY FOR HOUSING (AFERN 4.2.5)

		Operations	Column
A.	Existing		
	1. Total Dwelling Units		(1)
	a. Occupied Households		(2)
	(1) Owner Occupied		(3)
	(2) Renter Occupied		(4)
	(a) Military Owner		(8)
	(b) Base Civilian Owner		(9)
	(c) DAF Civilian Owner		(9A)
	(d) Military Renter		(10)
	(e) DAF Civilian Renter		(9B)
	(f) Base Civilian Renter		(11)
	b. Total Vacant		(5)
	(1) For Sale		(6)
	Homeowner vacancy rate	$\frac{(6)}{(3) + (6)}$	(12)
	(2) For Rent		(7)
	Rental vacancy rate	$\frac{(7)}{(4) + (7)}$	(13)
B.	Expected Minimum Effect (All Military and 62% DAF Leave)		
	1. Total Dwelling Units	(1)	
	a. Occupied Households (14)+(15)		
	(1) Owner occupied = (3)-(8)- .62 (9A)		(14)
	(2) Renter occupied =(4)-(10)- .62 (9B)		(15)
	b. Vacant Units (16)+(17)		
	(1) For Sale = (6)+(8)+ .62 (9A)		(16)
	(2) Homeowner vacancy rate	$\frac{(16)}{(14)+(16)}$	(18)

(3) For Rent = (7)+(10)+ .62 (9B) (17)

(4) Renter Vacancy Rate $\frac{(17)}{(15)+(17)}$ (19)

C. Maximum Effect (All Base Employees and Secondary Employees Leave the Region of Influence)

1. Total Dwelling Units* (1)

a. Occupied Households (21)+(22)

(1) Owner Occupied = (3)-(8)-(9)-X(20) (21)

(2) Renter Occupied = (4)-(10)-(11)-Y(20) (22)

b. Vacant Units (23)+(24)

(1) For Sale = (6)+(8)+(9)+X(20) (23)

(2) Homeowner Vacancy Rate $\frac{(23)}{(21)+(23)}$ (25)

(3) For Rent = (7)+(10)+(11)+Y(20) (24)

(4) Renter Vacancy Rate $\frac{(24)}{(22)+(24)}$ (26)

*NOTE: The X and Y factors used in C1.a(1) and C1.a(2) are the regionalized secondary employee owner and renter ratio which are shown in the table below for each base.

X = % of secondary employees who own houses

Y = % of secondary employees who rent houses

BASE	X	Y
Craig	49.4	50.6
Webb	63.9	36.1
Columbus	60.8	39.2
Laughlin	67.4	32.6
Reese	60.8	39.2
Vance	89.4	10.6

COMPUTATION SHEET 9

EXAMPLE CALCULATION FOR REESE HOUSING (AFERN 4.2.5)

A. Existing:	
1. Total Dwelling Units	56,626
a. Occupied Households	53,253
(1) Owner occupied	32,280
(a) Military Owner	517
(b) Civilian Owner	597
(2) Renter occupied	20,973
(a) Military Renter	600
(b) Civilian Renter	286
b. Total Vacancy	3,373
(1) For Sale	536
Homeowner vacancy rate	$\frac{536}{536 + 32280} = 1.6\%$
(2) For Rent	2,837
Rental vacancy rate	$\frac{2,837}{2837 + 20973} = 11.9\%$
B. Expected Minimum Effect:	
1. Total Dwelling Units	56,626
a. Occupied Households	51,738
(1) Owner occupied	31,452
(2) Renter occupied	20,286
b. Vacant Units	4,888
(1) For Sale	1,364
(2) Homeowner vacancy rate	4.1%
(3) For Rent	3,524
(4) Rental vacancy rate	14.8%

OWNER OCCUPIED

(3) - (8) - *.62 (9A)

32,280 - 517 - *.62 (501) =

32,280 - 517 - 311 = 31,452

RENTER OCCUPIED

(4) - (10) - *.62 (9B)

20,973 - 600 - *.62 (141) =

20,973 - 600 - 87 = 20,286

TOTAL OCCUPIED UNITS 51,738

FOR SALE

(6) + (8) + *.62 (9A)

536 + 517 + *.62 (501)

536 + 517 + 311 = 1,364

Vacancy Rate = $\frac{1364}{1364 + 31,452}$ = (4.1)

FOR RENT

(7) + (10) + *.62 (9B)

2837 + 600 + *.62 (141)

2837 + 600 + 87 = 3524

Vacancy Rate $\frac{3524}{3524 + 20,286}$ = (14.8)

TOTAL EXPECTED VACANT UNITS 4,988

TOTAL DWELLING UNITS 56,626

*Past DOD experience has shown 62% of DOD civilians relocate outside the area of influence.

C. Maximum Effect:

1. Total Dwelling Units	56,626
a. Occupied Households	49,833
(1) Owner Occupied	30,303
(2) Renter Occupied	19,530
b. Vacant Units	6,793
(1) For Sale	2,513
(2) Homeowner Vacancy Rate	7.6%
(3) For Rent	4,280
(4) Rental Vacancy Rate	18%
TOTAL MAXIMUM VACANCY RATE	12%

OWNER OCCUPIED

(3) - (8) - (9) - (X)(20)

32,280 - 517 - 597 - (60.8)(1420)

32,280 - 517 - 597 - 863 = 30,303

RENTER OCCUPIED

(4) - (10) - (11) - (Y)(20)

20,973 - 600 - 286 - (39.2)(1420) =

20,973 - 600 - 286 - 557 = 19,530

TOTAL OCCUPIED UNITS 49,833

FOR SALE

(6) + (8) + (9) + (X)(20)

536 + 517 + 597 + (60.8)(1420) =

537 + 517 + 597 + 863 = 2514

$$\text{VACANCY RATE} = \frac{2514}{2514 + 30,303} = 7.7\%$$

FOR RENT

(7) + (10) + (11) + (Y)(20)

2837 + 600 + 286 + (39.2)(1420) =

2837 + 600 + 286 + 557 = 4280

$$\text{VACANCY RATE} = \frac{4280}{4280 + 19{,}530} = 17.8\%$$

TOTAL MAXIMUM VACANCY RATE 12%

COMPUTATION SHEET 10

COMMUNITY HOUSING IMPACTS (AFERN 4.2.4.1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(9A)	(9B)	(10)
Base	Total Units	Occupied Households	Owner Occupied	Renter Occupied	Total Vacant	For Sale	For Rent	Military Owner Occupied	Base Civilian Owner Occupied	DAF Civilian Owner Occupied	DAF Civilian Renter Occupied	Military Renter Occupied
Craig	16,660	15,400	7,746	7,654	1,260	185	1,075	167	715	432	115	391
Webb	14,721	14,528	9,129	5,379	193	158	35	308	755	590	72	639
Columbus	18,424	17,323	10,030	7,293	1,101	227	874	102	569	395	169	966
Laughlin	8,397	8,245	5,277	2,968	152	97	55	329	622	505	104	636
Reese	56,626	53,253	32,280	20,973	3,373	536	2,837	517	597	501	141	600
Vance	17,012	16,422	14,442	1,980	590	340	250	225	963	112	28	171

COMPUTATION SHEET 10 (Cont)

Base	(11) Base Civilian Rent Occ.	(12) Existing Homeowner Vacancy Rate % (6) / (6) + (13)	(13) Existing Rental Vacancy Rate % (7) / (7) + (4)	(14) Expected Minimum Owner Occupied (3)-(8)-.62 (9A)	(15) Expected Minimum Renter Occupied (4)-(10)-.62 (9B)	(16) Expected Minimum For Sale (6)+(8)+.62 (9A)	(17) Expected Minimum For Rent (7)+(10)+.62 (9B)	(18) Expected Minimum Homeowner Vacancy Rate (16) / (14) + (16)	(19) Expected Minimum Renter Vacancy Rate (17) / (15) + (17)
Craig	225	2.3	12.3	7,311	7,192	620	1,537	7.8	17.6
Webb	154	1.7	0.6	8,455	4,715	832	719	8.9	13.2
Columbus	284	2.2	10.7	9,683	6,222	574	1,945	5.6	23.8
Laughlin	236	1.8	1.8	4,635	2,267	739	756	13.7	25.0
Reese	286	1.6	11.9	31,452	20,286	1,364	3,524	4.1	14.8
Vance	240	2.3	11.2	14,138	1,792	634	438	4.3	19.6

COMPUTATION SHEET 10 (Cont)

Base	(20) Secondary Employees	(21) Maximum Owner Occupied (3)-(8)-(9)-X(20)	(22) Maximum Renter Occupied (4)-(10)-(11)-Y(20)	(23) Maximum For Sale (6)+(8)+(9)+X(20)	(24) Maximum For Rent (7)+(10)+(11)+Y(20)	(25) Maximum Homeowner Vacancy Rate (23) (21) + (23)	(26) Maximum Rental Vacancy Rate (24) (22) + (24)
Craig	1,308	6,219	6,377	1,712	2,352	21.6%	26.9%
Webb	1,065	7,385	4,222	1,902	1,212	20.5%	22.3%
Columbus	1,244	8,603	5,555	1,654	2,612	16.1%	32.0%
Laughlin	920	3,706	1,796	1,668	1,227	31.0%	40.6%
Reese	1,420	30,303	19,530	2,513	4,280	7.7%	18.0%
Vance	936	12,417	1,470	2,365	760	16.0%	34.0%

EDUCATION (AFERN 4.4.3)

The impacts on public education are presented in two characterizations. The first describes the "expected minimum" loss in Average Daily Attendance (ADA), PL 81-874 impact aid funds, and state aid to education. The "expected minimum" loss would result from all military dependent students and 62% of the DAF civilian dependent students leaving the region as a result of the proposed or alternative action. Under the "expected minimum" case, all PL 81-874 funds would be lost to the local school districts, after three years of reduced impact aid payments (if the present law is extended by Congress). The "maximum" impact would result if all dependent students of base employees and all secondary employee dependent students were to leave the region. The distribution of secondary employee students by school district is assumed to be the same as the region's student distribution. The ratio of secondary employees to the number of students was determined by subtracting the base's federal employees and their dependent students from the region's labor force and total school enrollments respectively and then dividing the remaining students by the remaining work force. The state aid to education rates were determined by dividing the total state aid for the 1975-1976 school year (provided by local officials) by the ADA for each school district. Sample calculations for Laughlin AFB are shown on computation sheet 11. Summary impacts on education for all bases are shown on computation sheet 12.

The situation varies in the case of Vance where dependent students of the Northrop employees generate PL 81-874 funds. Local school officials have identified those students separately from military and DAF dependents. Under either the minimum expected or maximum characterizations, the school districts would lose all PL 81-874 funds. Since the number of Northrop dependents in school is known, Northrop employees are excluded from the estimation routine used for determining the number of secondary and non-DAF related students that could be lost under the maximum condition. The Northrop related students are then directly included along with military and DAF related students.

CALCULATION METHODOLOGY FOR EDUCATION (AFERN 4.3.3)

		Column
A.	**Existing**	
1.	School District(s) ADA	(1)
2.	Military On-Base Students	(2)
3.	Military Off-Base Students	(3)
4.	DAF Civilian Students	(4)
5.	Non-DAF Civilian Students (1)-(2)-(3)-(4) =	(5)
6.	Student Distribution by District %	(6)
7.	Total PL 81-874 (1975-1976) by District	(7)
8.	Total State Aid (1975-1976) by District	(8)
9.	State Aid Rate by District (8)÷(1) =	(9)
10.	Secondary and Non-DAF Employees in Region	(10)
11.	Student/Employee Ratio (5)÷(12)	(11)
12.	Non-DAF Labor Force in Region	(12)
B.	**Expected Minimum Reduction (All Military and 62% DAF Leave)**	
1.	Student Loss by District (2)+(3)+.62(4) =	(13)
2.	PL 81-874 Reduction by District (7)	(7)
3.	State Aid Reduction by District (9) (13)	(14)
4.	Student Loss as % of District Total (13)÷(1)=	(15)
C.	**Maximum Reduction (All Base Employees and Secondary Employees Leave)**	
1.	Student Loss by District (2)+(3)+(4)+[(6)(10)(11)]=	(16)
2.	State Aid Reduction by District (9)(16) =	(17)
3.	Student Loss as % of District Total (16)÷(1)=	(18)

COMPUTATION SHEET 11

EXAMPLE CALCULATION FOR
LAUGHLIN EDUCATION (AFERN 4.3.3)

			Column
A.	Existing		
1.	San Felipe-Del Rio Consolidated ISD ADA	= 7,551	(1)
2.	Military On-Base Students	= 482	(2)
3.	Military Off-Base Students	= 287	(3)
4.	DAF Civilian Students	= 512	(4)
5.	Non-DAF Civilian Students	= 6,270	(5)
6.	Student Distribution by District	= 100%	(6)
7.	Total PL 81-874 (1975-1976) District	= $375,875	(7)
8.	Total State Aid (1975-1976) District	= $5,652,028	(8)
9.	State Aid Rate by District $\frac{5,652,028}{7,551}$	= $749	(9)
10.	Student/Employee Ratio $\frac{6,270}{8,750}$	= .72	(11)
11.	Secondary and Non-DAF Employees in Region	= 1,169	(10)
12.	Non-DAF Labor Force in Region	= 8,750	(12)
B.	Expected Minimum Reduction		
1.	Student Loss San Felipe (482)+(287)+(318)	= 1,087	(13)
2.	PL 81-874 Reduction San Felipe	$375,875	(7)
3.	State Aid Reduction San Felipe (1087)(749.00)	=$814,163	(14)
4.	Student Loss as % of San Felipe ADA $\frac{1,087}{7,551}$	= 14.4%	(15)
C.	Maximum Reduction		
1.	Student Loss San Felipe 482+287+512+[1169x.72]	= 2,123	(16)
2.	State Aid Loss by District (749.00)(2123)	= 1,590,126	(17)
3.	Student Loss as % of District Total $\frac{2,123}{7,551}$	= 28.0%	(18)

COMPUTATION SHEET 12
EDUCATION IMPACTS (AFERN 4.3.3)

BASE School District	(1) ADA	(2) Military On-Base Students	(3) Military Off-Base Students	(4) DAF Civilian Students	(5) Non-DAF Civilian Students (1)-(2)-(3)-(4)	(6) Student Distribution (%)	(7) Total PL81-874 (1975-1976)	(8) Total State Aid (1975-1976)	(9) State Aid Rate (8) / (1)	(10) Sec & Non-DAF Employees in Region	(11) Student/ Employee Ratio (5) / (12)	(12) Non-DAF Labor Force in Region
CRAIG												
Selma	6,048	96	109	211	5,632	48.7	$ 104,772	$3,351,824	$554	1,701	0.59	19,756
Dallas Co.	6,322	89	132	167	5,934	51.3	95,705	3,806,160	602			
WEBB												
Big Spring	5,757	363	340	373	4,681	78.5	343,329	4,244,836	737	1,311	0.38	15,507
Forsan	398	0	25	43	330	5.5	12,000	83,110	209			
Coahoma	998	0	15	34	949	16.0	10,000	569,708	571			
COLUMBUS												
Columbus Separate	7,161	491	175	180	6,315	63.5	375,923	3,934,368	549	1,534	0.49	20,471
Lowndes Co.	3,868	0	139	104	3,625	36.5	41,134	2,196,393	568			
LAUGHLIN												
Del Rio San Felipe	7,551	482	287	512	6,270	100	375,875	5,652,028	749	1,169	0.74	8,510
REESE												
Lubbock	29,892	7	281	166	29,438	93	74,470	21,143,521	707	1,660	0.35	90,170
Frenship	1,978	276	95	48	1,559	5	175,427	1,644,489	831			
Shallowater	686	0	16	19	651	2	7,982	483,160	704			
VANCE												
Enid	7,918 [1]	197	250	70 [413] [2]	6,988 [3]	77.1	226,060	2,726,336	344	1,060 [4]	0.34	26,688 [4]
Waukomis	488 [1]	11	12	36 [32] [2]	397 [3]	4.4	17,856	198,252	406			
N. Enid	1,219 [1]	0	12	0 [35] [2]	1,172 [3]	12.9	11,989	418,101	343			
Pioneer	540 [1]	0	0	0 [30] [2]	510 [3]	5.6	5,867	228,793	424			

1 - Enrollment
2 - Northrop Dependents
3 - Excludes Northrop Dependents
4 - Northrop Employees Excluded (939)

COMPUTATION SHEET 12 (continued)

EDUCATION IMPACTS (AFERN 4.3.3)
(Continued)

BASE School District	IMPACT: Expected Minimum Reduction (Military and 62% DAF Leave) (13) Student Loss (2)+(3)+ 0.62(4)	(14) State Aid Reduction (13)x(9)	(15) Student Loss % of Total (13) / (1)	IMPACT: Maximum Reduction (All Base Employees and All Sec Leave) (16) Student Loss (2)+(3)+(4)+ (6)x(10)x(11)	(17) State Aid Loss (9)x(16)	(18) Student Loss % of Total (16) / (1)
CRAIG						
Selma	336	$186,144	5.6	905	$ 501,370	15.0
Dallas Co.	325	195,650	5.1	903	543,606	14.3
WEBB						
Big Spring	934	688,358	16.2	1,467	1,081,179	25.5
Forsan	52	10,868	13.1	95	19,855	23.9
Coahoma	36	20,556	3.6	129	73,659	12.9
COLUMBUS						
Columbus	778	427,122	10.9	1,323	726,327	18.5
Separate						
Lowndes Co.	203	115,304	5.2	517	293,656	13.4
LAUGHLIN						
Del Rio-						
San Felipe	1,087	814,163	14.4	2,146	1,607,354	28.4
REESE						
Lubbock	391	276,437	1.3	994	702,758	3.3
Frenship	401	333,231	20.3	448	372,288	22.6
Shallowater	28	19,712	4.1	47	33,088	6.9
VANCE						
Enid	490	168,560	6.2	1,208	415,552	15.3
Waukomis	45	18,270	9.2	107	43,442	21.9
N. Enid	12	4,116	1.0	93	31,899	7.6
Pioneer	30	12,720	5.6	50	21,200	9.3